

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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1 (Previously Presented). A pipe, of the type comprising:

- a concrete cylinder possessing at least one annular end of determined longitudinal axis, defined by a longitudinal outside peripheral face and by a transverse front face;

- a female end ring coaxial with said end and secured thereto, the ring consisting in:

- firstly a longitudinal ferrule for securing to the cylinder, the ferrule being defined by a longitudinal inside peripheral face fitting snugly against said outside peripheral face in the immediate vicinity of said front face; and

- secondly a longitudinal skirt projecting longitudinally over said front face to engage coaxially on a male endpiece of another pipe,

wherein the ferrule is in a state of circumferential elastic tension providing sealing relative to said outside peripheral face by said inside peripheral face applying thereagainst transverse pressure which is circumferentially distributed in continuous manner.

2 (Previously Presented). A pipe according to claim 1, wherein said circumferential elastic tension is such that said inside

peripheral face is fastened, at least in part, to said outside peripheral face by the mutual friction effect that results from said transverse pressure.

3 (Previously Presented). A pipe according to claim 2, wherein it includes at least one band coaxially surrounding the ferrule and placed in circumferential tension.

4 (Previously Presented). A pipe according to claim 1, wherein said inside peripheral face presents at least one continuous annular sealing portion in relief facing said outside peripheral face in a state of elastic and/or plastic transverse compression thereagainst, formed integrally with the ferrule.

5 (Previously Presented). A pipe according to claim 1, wherein said outside peripheral face and said inside peripheral face flare in the longitudinal direction going away from said front face and relative to the transition between the ferrule and the skirt.

6 (Previously Presented). A pipe according to claim 4 wherein said continuous annular portion in relief is in the form of a rib and there is only one of them.

7 (Previously Presented). A pipe according to claim 1, wherein said inside peripheral face is fastened to said outside peripheral face by annular adhesive between them.

8 (Previously Presented). A pipe according to claim 1, wherein it includes at least one continuous sealing ring of plastic

material interposed between said inside peripheral face and said outside peripheral face.

9 (Previously Presented). A pipe according to claim 1, wherein it includes an annular sealing gasket of an elastically compressible material interposed in elastic transverse compression stress between said inside peripheral face and said outside peripheral face, at least in the immediate vicinity of said front face.

10 (Previously Presented). A pipe according to claim 9, wherein said outside peripheral face presents a localized annular setback at least in the immediate vicinity of said front face and in that said gasket is received over a fraction of its transverse dimension in said setback.

11 (Currently Amended). A pipe according to claim 9, ~~wherein said~~ wherein said gasket is in the form of a film.

12 (Previously Presented). A pipe according to claim 11, wherein said film extends from said front face over a longitudinal dimension shorter than the respective longitudinal dimensions of said outside peripheral face and of inside peripheral face.

13 (Previously Presented). A pipe according to claim 11, wherein said inside peripheral face is fastened to said film by annular adhesive between them.

14 (Previously Presented). A pipe according to claim 11, wherein said film presents at least one continuous annular bulge

spaced apart longitudinally from said front face by a distance which is shorter than the respective longitudinal dimensions of said outside peripheral face and said inside peripheral face causing an increase in said tension and in said pressure that is localized longitudinally.

~~15~~ (Previously Presented). A pipe according to claim 14, wherein said continuous annular bulge corresponds to a continuous annular groove in said inside peripheral face.

16 (Previously Presented). A pipe according to claim 1, wherein the inside of the ring presents longitudinal abutment means for engaging said front face, the abutment means being located at the transition between the ferrule and the skirt projecting transversely relative to said inside peripheral face and being placed facing said front face.

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(cont) 17 (Previously Presented). A pipe according to claim 16, wherein the skirt also presents a longitudinal inside peripheral face, and in that the abutment means also form a transverse projection relative thereto to serve as a longitudinal abutment for said male endpiece.

18 (Previously Presented). A pipe according to claim 17, wherein the abutment means comprise a transverse annulus that is circumferentially continuous, and that presents a longitudinal dimension that is uniform.

19 (Currently Amended). A pipe according to claim 16, further comprising an annular sealing gasket interposed between said inside peripheral face and said outside peripheral face wherein said gasket is in the form of a film ~~forms~~ forming an annular rim extending transversely on said front face;

and in that the longitudinal abutment means press longitudinally against said front face via said rim.

20 (Previously Presented). A pipe according to claim 1, wherein the inside of the skirt presents a shape suitable for receiving and holding at least one transverse annular sealing gasket for engaging the male endpiece.

21 (Previously Presented). A pipe according to claim 20, wherein the inside of the skirt has at least one transverse annular sealing gasket fixed thereto for engaging the male endpiece.

22 (Previously Presented). A pipe according to claim 1, wherein the ferrule has a transverse annular edge longitudinally opposite from the transition between the ferrule and the skirt, and projecting transversely relative to said inside peripheral face in the immediate vicinity of said edge, at least one projecting catch engaged in a depression in the outside peripheral face to hold the ferrule longitudinally on the cylinder.

23 (Previously Presented). A pipe according to claim 22, wherein said depression is in the form of a transverse annular groove in said outside peripheral face.

24 (Previously Presented). A pipe according to claim 22, wherein the ferrule has a plurality of catches that are circumferentially localized, being regularly distributed circumferentially, all occupying the same longitudinal position and engaged in respective depressions or in said annular groove.

~~25~~ (Previously Presented). A pipe according to claim 1, wherein the ferrule is fastened to the cylinder by transverse pins that are regularly distributed circumferentially.

26 (Previously Presented). A female end ring for making a pipe according to claim 1, presenting a longitudinal axis and comprising:

- a longitudinal ferrule defined by a longitudinal inside peripheral face; and

- a longitudinal skirt situated axially in line with the ferrule,

the ferrule being elastically expandable circumferentially.

27 (Previously Presented). A female end ring according to claim 26, wherein said inside peripheral face presents at least one continuous annular portion in relief that is elastically and/or plastically compressible transversely and that is integral with the ferrule.

28 (Previously Presented). A female end ring according to claim 26, wherein said inside peripheral face flares in the

longitudinal direction going away from the transition between the ferrule and the skirt.

29 (Previously Presented). A female end ring according to claim 27 wherein said continuous annular portion in relief is in the form of a rib, and there is only one of them.

30 (Previously Presented). A female end ring according to claim 26, further comprising abutment means on the inside at the transition between the ferrule and the skirt, the abutment means projecting transversely relative to said inside peripheral face.

31 (Previously Presented). A female end ring according to claim 30, wherein the skirt also presents a longitudinal inside peripheral face and in that the abutment means also project transversely relative thereto.

32 (Previously Presented). A female end ring according to claim 31, wherein the abutment means comprise a circumferentially continuous transverse annulus of uniform longitudinal dimension.

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(cont) 33 (Previously Presented). A female end ring according to claim 26, wherein the inside of the skirt is shaped suitably to receive and to hold at least one transverse annular sealing gasket.

34 (Previously Presented). A female end ring according to claim 33, wherein the inside of the skirt is integral with at least one transverse annular sealing gasket.

35 (Previously Presented). A female end ring according to claim 26, wherein the ferrule presents a transverse annular edge

longitudinally opposite from the transition between the ferrule and the skirt, and projecting transversely relative to said inside peripheral face in the immediate vicinity of said edge at least one catch.

36 (Previously Presented). A female end ring according to claim 35, wherein the ferrule has a plurality of catches which are circumferentially localized, which are regularly distributed circumferentially, and all of which occupy the same longitudinal position.

37 (Previously Presented). A female end ring according to claim 26, wherein the ferrule and the skirt present respective shapes and transverse dimensions suitable for enabling a plurality of rings to be nested releasably and coaxially by nesting the ferrule of one with the skirt of another.

38 (Previously Presented). A method of manufacturing a pipe of the type comprising:

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(cont)

- a concrete cylinder possessing at least one annular end of determined longitudinal axis, defined by a longitudinal outside peripheral face and by a transverse front face;

- a female end ring coaxial with said end and secured thereto, the ring consisting in:

- firstly a longitudinal ferrule for securing to the cylinder, the ferrule being defined by a longitudinal inside peripheral face



fitting snugly against said outside peripheral face in the immediate vicinity of said front face; and

- secondly a longitudinal skirt projecting longitudinally over said front face to engage coaxially on a male endpiece of another pipe,

said method comprising an initial step of prefabricating the ring,

a) prefabricating the cylinder independently of the ring, the ring being dimensioned in such a manner that, at a determined longitudinal distance from the transition between the ferrule and the skirt, and in the absence of the ring being expanded circumferentially, said inside peripheral face presents transverse dimensions that are smaller than those presented by said outside peripheral face at the same longitudinal distance from said front face, but sufficiently close thereto to be capable of being increased to said dimensions by putting the ferrule under circumferential elastic tension; and

b) engaging the ferrule coaxially on the annular end of the cylinder to a determined relative position in which said transition coincides longitudinally with said front face, and fastening the ferrule to the cylinder in said determined relative position by placing said ferrule in a state of circumferential elastic tension providing sealing relative to said outside peripheral face by said

inside peripheral face applying thereto transverse pressure that is distributed circumferentially in continuous manner.

39 (Previously Presented). A method according to claim 38, wherein said circumferential elastic tension is such that said inside peripheral face is fastened at least in part to said outside peripheral face by the mutual friction effect that results from said transverse pressure.

40 (Previously Presented). A method according to claim 39, wherein said effect is reinforced by banding the ferrule in said determined relative position.

41 (Previously Presented). A method according to claim 38, wherein coaxial engagement of the ferrule on the annular end of the cylinder during step b) is facilitated by placing the ferrule in a state of circumferential expansion greater than that which corresponds to said state of circumferential elastic tension, until said relative position has been reached, and

in that the ferrule is allowed to leave said state of circumferential expansion so as to allow said transverse pressure to be established once said relative position has been reached.

42 (Previously Presented). A method according to claim 41, wherein the ferrule is placed in said state of circumferential expansion by means selected from the group comprising mechanical means and thermal means.

43 (Previously Presented). A method according to claim 38, wherein, respectively during the initial step and during step a), the ring and the cylinder are prefabricated in such a manner that said outside peripheral face and/or said inside peripheral face flare relative to their respective longitudinal axes in a longitudinal direction going away respectively from said front face and from the transition between the ferrule and the skirt.

44 (Previously Presented). A method according to claim 43, wherein during step a) the cylinder is prefabricated in such a manner that said outside peripheral face flares more than does said inside peripheral face relative to their respective longitudinal axes.

45 (Previously Presented). A method according to claim 38, wherein between steps a) and b), a ring of adhesive is deposited on a localized zone of said outside peripheral face and/or of said inside peripheral face selected in such a manner that when implementing step b) and thereafter said zone constitutes a zone of mutual contact via said adhesive and of application of said transverse pressure.

46 (Previously Presented). A method according to claim 38, wherein between steps a) and b), at least one continuous ring of plastic sealing material is placed on said outside peripheral face and/or said inside peripheral face, and in that during step b), said plastic sealing material between said inside peripheral face

and said outside peripheral face is caused to be flattened and/or to creep.

47 (Previously Presented). A method according to claim 38, wherein between steps a) and b), a sealing gasket of elastically compressible material is put into place on said outside peripheral face at least in the immediate vicinity of said front face,

and in that during step b), said gasket is put into elastic transverse compression stress between said inside peripheral face and said outside peripheral face.

48 (Previously Presented). A method according to claim 47, wherein, during step a), the cylinder is prefabricated in such a manner that said outside peripheral face presents a localized annular setback at least in the immediate vicinity of said front face, and in that between steps a) and b), said gasket is put into place by being received over a fraction of its transverse dimension in said setback.

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(unit) 49 (Previously Presented). A method according to claim 47 wherein said gasket is selected in such a manner that it is in the form of a film.

50 (Previously Presented). A method according to claim 49, wherein said film is selected and placed in such a manner that it extends from said front face over a longitudinal dimension that is less than the longitudinal dimensions respectively of said outside peripheral face and of said inside peripheral face.

51 (Previously Presented). A method according to claim 49, wherein between steps a) and b), after said film has been put into place, a ring of adhesive is deposited on a localized zone of said film and/or of said inside peripheral face selected in such a manner that during implementation of step b) and subsequently, said zone constitutes a zone of mutual contact via said adhesive and of application of said transverse pressure.

52 (Previously Presented). A method according to claim 45, wherein said adhesive is selected in such a manner that while in the fresh state it constitutes a lubricant associating implementation of step b) by progressive forced engagement of the ferrule coaxially onto the annular end of the cylinder, and subsequently serves to fasten them together.

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(ind) ~~53~~ (Previously Presented). A method according to claim 49, wherein said film is selected and placed in such a manner as to present at least one continuous annular bulge longitudinally spaced apart from said front face by a distance which is shorter than the respective longitudinal dimensions of said outside peripheral face and said inside peripheral face, so as to give rise to a longitudinally localized increase in said tension and in said pressure.

~~54~~ (Previously Presented). A method according to claim 53 wherein the hardness and the dimensions of said continuous annular bulge are selected and step b) is implemented in such a manner that

in said determined relative position said continuous annular bulge causes a corresponding continuous annular groove to be formed in the inside peripheral face, by localized plastic deformation of the ferrule.

55 (Currently Amended). A method according to claim 38, wherein during step b) coaxial engagement of the ferrule on the annular end of the cylinder is stopped when ~~the~~ a longitudinal abutment means mounted on said ferrule comes into abutment against said front face.

56 (Currently Amended). A method according to claim 55 wherein between steps a) and b), a sealing gasket in the form of a film is placed on said outside peripheral face and an annular transverse rim of said film is formed on said front face, and

in that during step b), said coaxial engagement is stopped when the longitudinal abutment means come into abutment against said front face via said rim.

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(ind)  
57 (Previously Presented). A method according to claim 38 wherein in step a) or after step b), at least one transverse annular sealing gasket for engaging the male endpiece is secured to the inside of the skirt.

58 (Previously Presented). A method according to claim 38, wherein during step a), the cylinder is prefabricated in such a manner as to present in said outside peripheral face at a longitudinal distance from said front face corresponding to the

longitudinal distance between said catch and the transition between the ferrule and the skirt, at least one depression for receiving said catch, there being at least one such catch, and in that step b) is implemented by progressively engaging the ferrule by force coaxially on the annular end of the cylinder and by pressing said at least one catch on said outside peripheral face by increasing elastic deformation of the ring and by allowing it to engage in said at least one depression by resilient return once said determined relative position has been reached.

59 (Previously Presented). A method according to claim 58, wherein during step a) said depression is implemented in the form of a transverse annular groove in said outside peripheral face.

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(amended)

~~60~~ (Previously Presented). A method according to claim 38, wherein after step b) the ferrule is fastened to the cylinder by transverse pins that are regularly distributed circumferentially.

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